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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

19 MAY 1989

MEMORANDUM  
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SUBJECT: Technical Document on Control of Nitrogen Oxides From  
Municipal Waste Combustors

FROM: Jack R. Farmer, Director  
Emission Standards Division, OAQPS (MD-13)

TO: Air Management Division Directors  
Regions I, III, V, and IX

Air and Waste Management Division Director  
Region II

Air, Pesticides, and Toxics Management Division  
Directors, Regions IV and VI

Air and Toxics Division Directors  
Regions VII, VIII, and X

As you know, OAQPS is currently developing air emissions standards for municipal waste combustors (MWC's) under Section III of the Clean Air Act (CAA). As part of this effort, the technical aspects of the control of nitrogen oxides (NOx) emissions from MWC's are being evaluated. The purpose of this memorandum is to transmit OAQPS's evaluation, contained in the attached technical report, for use by the Regions in considering NOx requirements for the permitting of new MWC's.

Selective non-catalytic reduction (SNCR) is currently being applied at three facilities in California in the form of the Exxon Thermal De-NOx process. As you are aware, the Administrator remanded on November 10, 1988, a Prevention of Significant Deterioration (PSD) permit issued by the New Jersey Department of Environmental Protection (NJDEP) for the Pennsauken County, New Jersey, Resource Recovery Facility. The remand was based on a determination that the best available control technology (BACT) analysis for the control of NOx emissions under the "top-down" approach was inadequate. The NJDEP reconsidered its previous determination and reissued the permit with a more stringent emission limitation for NOx based on the use of the Thermal De-NOx process. Furthermore, several States, including the NESCAUM States and California, consider SNCR to be BACT for MWC's.

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The attached technical report documents the currently available knowledge on NOx emissions and control of these emissions for MWC's. It presents the available data on uncontrolled NOx emissions from MWC's, and information on alternative techniques that have been applied (both within and outside the United States) or could potentially be applied to MWC's to achieve NOx control. Detailed information is presented for the Exxon Thermal De-NOx system, including emission control performance data, procedures for calculating capital and annualized costs, potential

operating problems such as ammonia emissions and the generation of a visible detached plume, and the possible interference of this process with the control of mercury emissions as achieved by spray dryer/particulate matter control systems. Also, the estimated costs of applying Thermal De-NOx to several model MWC facilities representative of new MWC's are presented.

The transmittal of this report should not be considered as issuance of operational guidance on control requirements for NOx emissions from MWC's under PSD provisions of the Act. As additional information becomes available on SNCR, and the Exxon Thermal De-NOx process in particular, we will evaluate it to gain a better understanding of any site-specific factors that may affect the cost and effectiveness of NOx controls for MWC's.

If you have any questions concerning the technical report, please call Al Vervaert at FTS 629-5602 or (919) 541-5602.

Attachment

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